NC/QC/W-06/2019-20/HN-C1 Date: 16-12-2019

1. TEST REPORT ON CEMENT:

Sub: Testing of 53 Grade Cement Sample (IS 12269-1987).
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

PHYSICAL TESTS ON CEMENT

Grade * : 53,
Type * : O.P.C

TABLE 1.1:

SL No	Name of Test	Test Results	Requirements as per IS 8112-1989
1	Initial setting time	**168 min**	Shall not be less than 30 min
2	Final setting time	**255 min**	Shall not be more than 600 min
3	Fineness (by dry sieving on IS 90 micron sieve)	**1.71 %**	Not to exceed 10.0%
4	Soundness test(by Le-Chatelier's method)	**1.82 mm**	Shall not be more than 10 mm
5	Compressive strength a) 3 days (average of three results)	**28.39 N/Sq mm**	Shall not be less than 27 N/Sqmm

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NC/QC/W-06/2019-20/HN-PCC1 **Date: 16-12-2019**

1. TESTING OF COARSE AND FINE AGGREGATES:

Sub: Testing of Coarse and Fine aggregates to be used for bed concrete.
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

1. COARSE AGGRGATES TABLE - SIEVE ANALYSIS:

IS Sieve Size, mm	Percentage passing	Requirements as per IS 383-1970 (Reaffirmed on 2007) % Passing	
	40 mm Sample	Single size	Graded
40mm	**100.00**	85-100	90 – 100
20mm	**63.10**	0 -20	30- 70
10mm	**20.85**	0 -5	10- 35
4.75mm	**4.30**	------	0- 5

2. FINE AGGREGATES TABLE - SIEVE ANALYSIS:

IS Sieve Size, mm	Percentage Passing	Specification as Per IS: 383-1970(Reaffirmed 2002) Percentage Passing			Remarks
		Zone-I	Zone-II	Zone -III	
04.75	**100.00**	90-100	90-100	90-100	The Sample Conforms to Grading **Zone-II**
02.36	**98.65**	60-95	75-100	85-100	
01.18	**83.20**	30-70	55-90	75-100	
600.mic	**49.05**	15-34	35-59	60-79	
300.mic	**11.40**	5-20	8-30	12-40	
150.mic	**7.95**	0-10	0-10	0-10	

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NC/QC/W-06/2019-20/HN-C2

Date: 19-12-2019

1. TEST REPORT ON CEMENT:

Sub: Testing of 53 Grade Cement Sample (IS 12269-1987).
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

PHYSICAL TESTS ON CEMENT

Grade * : 53,
Type * : O.P.C

TABLE 1.1:

SL No	Name of Test	Test Results	Requirements as per IS 8112-1989
1	Initial setting time	**171 min**	Shall not be less than 30 min
2	Final setting time	**280 min**	Shall not be more than 600 min
3	Fineness (by dry sieving on IS 90 micron sieve)	**1.96 %**	Not to exceed 10.0%
4	Soundness test(by Le-Chatelier's method)	**2.01 mm**	Shall not be more than 10 mm
5	Compressive strength a) 3 days (average of three results	**28.97 N/Sq mm**	Shall not be less than 27 N/Sqmm

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NC/QC/W-06/2019-20/HN-FA1

Date: 19-12-2019

1. TESTING OF FINE AGGREGATES :

Sub: Testing of Fine Aggregates.
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

TABLE - 1.1 : SIEVE ANALYSIS :

IS Sieve Size,mm	Percentage Passing	Specification as Per IS: 383-1970(Reaffirmed 2002) Percentage Passing			Remarks
		Zone-I	Zone-II	Zone -II	
04.75	**95.65**	90-100	90-100	90-100	The Sample Conforms to Grading **Zone-II**
02.36	**82.05**	60-95	75-100	85-100	
01.18	**79.50**	30-70	55-90	75-100	
600. mic	**44.20**	15.34	35-59	60-79	
300.mic	**27.10**	5-20	8-30	12-40	
150.mic	**7.85**	0-10	0-10	0-10	

TABLE 1.2 ;

Sl No	Test Conducted	Sample	Results	Requirements as Per IS. Specification IS :383-1970 (Reaffirmed 2002)
1	Bulking of Sand	001	**18.95 %**	-----
2	Silt Content	----	**0.64%**	Not more than 8%
3	Specific Gravity	----	**2.61**	-------

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NC/QC/W-06/2019-20/HN-CA1

Date: 19-12-2019

1. TESTING OF COARSE AGGREGATES (20 mm):

Sub: Testing of Construction Materials.

{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}

Ref.: Material testing/PMC/19-20,

Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

Table - 1.1 : SIEVE ANALYSIS :

IS Sieve Size, mm	Percentage passing	Requirements as per IS 383-1970 (Reaffirmed on 2002) % Passing	
	20 mm Sample	Single size	Graded
40 mm	100.00	100.00	100.00
20 mm	98.30	85-100	90 - 100
10 mm	51.85	0 - 20	25 - 55
4.75 mm	3.20	0 - 5	0 - 10

TABLE 1.2 :

SL No	Test conducted	Results	Requirements as per IS:383-1970 & Tests Conforms to IS 2386(Part I to IV) – 1963 (Reaffirmed on 2002)
1.	Flakiness Index	21.90 %	Not to exceed 25 %
2.	Crushing value	26.81 %	Not to exceed 45 % for concrete other than for wearing surfaces and 30% for concrete for wearing surfaces

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NC/QC/W-06/2019-20/HN-S1

Date: 19-12-2019

1. TEST REPORT ON REINFORCEMENT STEEL:

Sub: Testing of Reinforcement Steel of diameter 10 and 12 mm **TMT Steel.**
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}

Ref.: Material testing/PMC/19-20,

Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

TABLE – 1

SL No	Details	For 10 mm		For 12 mm	
		Test Results	Min Req. as per IS 1786-2008	**Test Results**	Min Req. as per IS 1786-2008
01	Observed diameter of bar	**10.0 mm**	10.0 mm	**8.0 mm**	12.0 mm
02	Observed Wt/m Length **Kg/m**	**0.623**	0.567	**0.896**	0.834
03	Proof stress/Yield stress, fy , **N/mm^2**	**534.0**	500.0	**541.0**	500.0
04	Bend/ Re bend Test	**Ok**	---	**Ok**	---
05	Percentage of Elongation, %	**21.95**	12.00	**21.10**	12.00
06	Ultimate Tensile Strength **N/mm^2**	**631.0**	545.0	**638.0**	545.0

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NC/QC/W-06/2019-20/HN-CB1

Date: 30-12-2019

1. TEST REPORT ON CEMENT CONCRETE CUBES:

Sub: Testing of Concrete Cubes (for 07days Compressive Strength).
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

RESULTS OF COMPRESSIVE STRENGTH ON CEMENT CONCRETE CUBE SPECIMENS

Dimensions of Specimen : 150 X 150 X 150mm

Grade of Concrete* : M_{20}

TABLE 1.1:

Sl No	Location/ Identification*	Date of Casting*	Date of Testing	Age in Days	C/S Area in mm^2	Maximum Load in K.N	Compressive Strength (N/mm^2)	Avg. Value
1	001	23-12-19	30-12-19	07	22500	395	17.56	**16.96**
	002	"	"	"	"	370	16.44	
	003	"	"	"	"	380	16.89	

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Date: 02-01-2020

1. TEST REPORT ON CEMENT CONCRETE CUBES:

Sub: Testing of Concrete Cubes (for 07days Compressive Strength).
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

RESULTS OF COMPRESSIVE STRENGTH ON CEMENT CONCRETE CUBE SPECIMENS

Dimensions of Specimen : 150 X 150 X 150mm

Grade of Concrete* : M_{20}

TABLE 1.1:

Sl No	Location/ Identification*	Date of Casting*	Date of Testing	Age in Days	C/S Area in mm^2	Maximum Load in K.N	Compressive Strength (N/mm^2)	Avg. Value
1	001	26-12-19	02-01-20	07	22500	385	17.11	**17.04**
	002	"	"	"	"	375	16.67	
	003	"	"	"	"	390	17.33	

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Date: 20-01-2020

1. TEST REPORT ON CEMENT CONCRETE CUBES:

Sub: Testing of Concrete Cubes (for 28days Compressive Strength).
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

RESULTS OF COMPRESSIVE STRENGTH ON CEMENT CONCRETE CUBE SPECIMENS

Dimensions of Specimen : 150 X 150 X 150mm
Grade of Concrete* : M_{20}

TABLE 1.1:

Sl No	Location/ Identification*	Date of Casting*	Date of Testing	Age in Days	C/S Area in mm^2	Maximum Load in K.N	Compressive Strength (N/mm^2)	Avg. Value
1	001	23-12-19	20-01-20	29	22500	510	22.67	**22.30**
	002	"	"	"	"	495	22.00	
	003	"	"	"	"	500	22.22	

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NC/QC/W-06/2019-20/HN-CB2a

Date: 23-01-2020

1. TEST REPORT ON CEMENT CONCRETE CUBES:

Sub: Testing of Concrete Cubes (for 28days Compressive Strength).
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

RESULTS OF COMPRESSIVE STRENGTH ON CEMENT CONCRETE CUBE SPECIMENS

Dimensions of Specimen : 150 X 150 X 150mm
Grade of Concrete* : M_{20}

TABLE 1.1:

Sl No	Location/ Identification*	Date of Casting*	Date of Testing	Age in Days	C/S Area in mm^2	Maximum Load in K.N	Compressive Strength (N/mm^2)	Avg. Value
1	001	26-12-19	23-01-20	28	22500	505	22.44	**22.07**
	002	"	"	"	"	490	21.78	
	003	"	"	"	"	495	22.00	

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NC/QC/W-06/2019-20/HN -SB1

Date: 20-12-2019

1. TEST REPORT ON PRE –CAST SOLID BLOCKS:

Sub: Testing of Pre-Cast Solid Block- Compressive strength.
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}

Ref.: Material testing/PMC/19-20,

Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

RESULTS OF COMPRESSIVE STRENGTH ON PRE CAST(Solid Blocks)

BLOCK SPECIMENS

TABLE 1. 1:

Sl No.	Dimensions of Specimen **mm**	Details	Cross Sectional Area **mm^2**	Maximum Load in **KN**	Compressive Strength **N/ mm^2**	**Average Compressive Strength N/ mm^2**
1	400 X 200 X 200	**Solid**	80000	360	4.50	**4.52**
2	,,	,,	80000	370	4.63	
3	,,	,,	80000	355	4.44	

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NC/QC/W-06/2019-20/HN -K1

Date: 05-01-2020

TEST REPORT

Sub: Testing of Pre-cast Material-Kerb Stones.
{Project*: Improvements of drains and Construction of RCC Culverts at Hegdenagara Ward No.06.}
Ref.: Material testing/PMC/19-20,
Report Required for: Assistant Executive Engineer,
Project Division, Yelahanka Zone,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. P. Hemanth, Bangalore.

1. PHYSICAL TESTS ON KERB STONES :

Sl No.	Identification	Flexural strength, fcr in N/sqmm	Characteristic Compressive Strength, fck in N/sqmm	Avg. Characteristic. Compressive Strength fck in N/sqmm	Remarks
1	001	3.36	23.90	**23.03**	As per Cl. 6.2.2 of IS 456- 2000, fcr=0.7√ fck
2	002	3.31	22.40		
3	003	3.34	22.80		

2. WATER ABSORPTION TEST

Sl No	Identification	Water absorption %	Average value %
1	001	4.49	**4.48**
2	002	4.42	
3	003	4.52	

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